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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,245	12/04/2003	Charles A. Gealer	P16923	7794
28062	7590	10/06/2005	EXAMINER	
BUCKLEY, MASCHOFF, TALWALKAR LLC			IM, JUNGHWA M	
5 ELM STREET			ART UNIT	
NEW CANAAN, CT 06840			PAPER NUMBER	

2811

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/728,245

Applicant(s)

GEALER, CHARLES A.

Examiner

Junghwa M. Im

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 7-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 11-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/4/2003
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Claims 7-10 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on July 25, 2005.

Applicant argues that "... the described process is not materially different from the claimed process ..." since the amendment is made on the method claim. However, the product as claimed can be made by another and materially different process. For example, an IC die is formed on the temporary substrate, followed by placing a stiffener with openings over the IC die. And a package substrate will be attached on the IC die. Finally, the temporary substrate is removed to form the recited device. Therefore, it is pointed out that the inventions regarding the device and the method are distinct.

The requirement is still deemed proper and therefore made FINAL.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the microprocessor and the memory recited in claim 11 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet,

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even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 3-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Mertol (US 5909056).

Regarding claim 3, Fig. 3 of Mertol shows an apparatus comprising:

an integrated circuit package [306];

an integrated circuit die [311] coupled to the integrated circuit package; and

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a stiffener portion [303] coupled to the integrated circuit package and surrounding the integrated circuit die.

Regarding claim 4, Fig. 3 of Mertol shows underfill material [309] disposed between the integrated circuit die and the integrated circuit package.

Regarding claim 5, Fig. 3 of Mertol shows the stiffener portion and the integrated circuit package define a well in which the integrated circuit die is disposed, the apparatus further comprising thermally-conductive material [310; epoxy, col. 4, lines 10-11] disposed in the well and in contact with the integrated circuit die.

Regarding claim 6, Fig. 3 of Mertol shows a heat sink [300] coupled to the stiffener portion and in contact with the thermally-conductive material.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Pierson (US 6569710).

Regarding claim 1, Fig. 6A of Piesrson shows an apparatus comprising:

an integrated circuit package substrate [22'; a circuit board];

a plurality of integrated circuit die [38'] attached to the integrated circuit package substrate; and

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a stiffener strip [21] attached to the integrated circuit package substrate and surrounding two or more of the plurality of integrated circuit die [Fig. 1].

Regarding claim 2, Fig. 6A of Piesrson shows an apparatus further comprising: underfill material [57; silicone adhesive] disposed between the plurality of integrated circuit die and the integrated circuit package substrate.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki (US 6570815) in view of Mertol.

Regarding claim 11, Fig. 19 of Kashiwazaki shows a system comprising: a microprocessor comprising: an integrated circuit die (532, 534) and a double data rate memory (501a, 501b) electrically coupled to the microprocessor (col. 3, lines 43-45).

Fig. 19 of Kashiwazaki fails to show that the integrated circuit die comprises “an integrated circuit package; an integrated circuit die coupled to the integrated circuit package; and a stiffener portion coupled to the integrated circuit package and surrounding the integrated circuit die.” Fig. 3 of Mertol shows a integrated circuit die comprising an integrated circuit package [306]; an integrated circuit die [311] coupled to the integrated circuit package;

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and a stiffener portion [303] coupled to the integrated circuit package and surrounding the integrated circuit die.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Mertol into the device of Kashiwazaki in order to have an integrated circuit die comprising an integrated circuit package, an integrated circuit die coupled to the integrated circuit package and a stiffener portion coupled to the integrated circuit package and surrounding the integrated circuit die for a stable system configuration.

Regarding claim 12, Fig. 3 of Mertol shows the stiffener portion and the integrated circuit package define a well in which the integrated circuit die is disposed, the apparatus further comprising thermally-conductive material [310; epoxy, col. 4, lines 10-11] disposed in the well and in contact with the integrated circuit die.

Regarding claim 13, Fig. 3 of Mertol shows a heat sink [300] coupled to the stiffener portion and in contact with the thermally-conductive material.

Regarding claim 14, Kashiwazaki discloses a system according to further comprising: a motherboard electrically coupled to the microprocessor and to the memory (col. 3, lines 43-45).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (571) 272-1655. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Loke can be reached on (571) 272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jmi

Stephen Loke  
Examiner  
*Stephen Loke*